

**Remarks/Arguments**

This Reply is in response to the Office action mailed on June 16, 2006. A confirmation on the unique characteristic of the manufactured copper, aluminum, silicon, iron, nickel and cobalt ingots from the third party companies can be found in the Declaration filed under 37 CFR 1.132. Also included in the Declaration, description of each of the analytical techniques used to identify the unique characteristic of the ingots and photographs of the magnetic copper.

Claims 5 and 6 have been amended. Claim 7 has been canceled. No new matter is added by virtue of these amendments.

**Provisional Double Patenting**

Claims 14-42 have been provisionally rejected under double patenting over US Patent Application No. 10/659,149, 10/690,050, 10/690,050 and 10/690,391. As discussed in the last response. These provisional rejections were created based on the Examiner's suggestion that the claims from these cases be incorporated into this application. It was expected that the Examiner would allow many of the claims based on the evidence submitted in the last response. Applicants had agreed that any duplicate claims that were allowed in this case would be canceled in the copending applications. The Examiner appeared to indicate that this was acceptable. Thus, it is respectfully requested that this provisional rejection be held in abeyance pending resolution of the remaining issues.

**Rejection under 35 U.S.C. §112, First Paragraph, Written Description**

The Examiner rejected claims 27-31 stating that the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner further asserts that the limitations recited in each of these claims do not find literal or inherent support in the disclosure as original filed. The Applicant respectfully disagrees. X-ray fluorescence

analysis is a well known method, has commonly been used to determine the characteristics of metals and was described in detail in the present specification. Applicant used this method to confirm the unique characteristics of his invention and has proven the Applicant was in possession of the claimed invention at the time the application was filed. Verbatim recitation of the claim is not required to provide support.

The limitation "characterized by an X-ray fluorescence analysis" is fully supported in the specification on page 20-24 of the specification as well as in the figures and tables. As explained in detail in the working examples, each report or analysis recites an emission detecting the presence of a substantial number of elements that were simply not placed in contact with the starting material. For example, in Example 11, copper (99.98% purity) was placed in a crucible (the composition of which is described). The only additional elements brought in contact with the copper were nitrogen, graphite (< 5ppm impurity), argon, water and the atmosphere. The analysis reports detected, for example, lanthanides (Table 32) and iridium (Table 3). Neither element was introduced into the process. The limitation of the claim 30 is fully supported in Example 11 (copper), Example 2 (nickel), Example 3 (cobalt), Example 7 (silicon), and Example 8 (iron). The limitation of elements listed in claim 31 can be found throughout the figures and tables presented in the application. Further, the Applicant has included in the 1.132 Declaration, description of the X-ray fluorescence analyzing method, as well as third party confirmations for all the metals listed in claim 30.

It is believed that the Applicant has shown that he has possession of not only the copper ingot, but other types of metal of the claimed invention as well. The limitation in the claim is supported by the specification in that the invention is described in the disclosure of the results.

The Examiner rejected claims 1-7 stating that the newly added limitation "at room temperature" has no support. The Applicant respectfully traverses. As stated on page 63, line 24 of the application "Immediately after the method described above was completed, multiple discrete magnetic spots attracted by a 1/8" diameter neodymium iron boron magnet were observed in a sinusoidal pattern". The Applicant believed that the limitation

“room temperature” is inherently supported in the specification because the last step of the method was “The reactor temperature was rapidly cooled by quenching in water...” which teaches that cooling to room temperature took place. Further support can be found in the general method of processing a method. The last step (N) disclosed on page 3, line 27 specifically stated that “cooling the molten metal or alloy to room temperature, thereby obtaining a solidified manufactured metal or alloy.” It is believed that the limitation “at room temperature” and assessing the properties of the products at room temperature are clearly supported by the specification. While it is true that attraction to iron filings was also observed at a reduced temperature, this sentence does not infer that the attraction to the magnet was observed only at this reduced temperature. Please note that claim 7 has been incorporated into claim 6 in this regard and claim 7 has been canceled.

The Examiner rejected claims 10-13 stating that the limitations recited in each of these claims do not find literal or inherent support in the disclosure as originally filed. The Examiner further asserts that the claim language relating to Gauss readings and “attraction independent of pole” have no support. Applicant disagrees. The Examiner does not dispute that the specification teaches copper compositions produced by an iterative process which is characterized by the physical properties described in the claim. The Applicant has submitted a Declaration that includes photographs showing magnetic attraction to both the North and South poles and magnetic attraction that gives a zero reading in a Gauss meter. The property has been shown to be inherent in the product claimed. Accordingly, the subject matter of the claim is supported by the specification.

Applicant respectfully requests that all rejections under 35 U.S.C. §112, first paragraph, written description be withdrawn.

Rejection under 35 U.S.C. §112, Second Paragraph

The Examiner rejected claims 1-7, 9-11, and 13 as being indefinite for failing to particularly point out and distinctly claim the subject matter. The Examiner states that the instant application does not provide a standard for determining the degree of the

phrase "substantially free of other metals". The Applicant respectfully disagrees. The Examiner agrees that terms of degree and similar "broadening modifiers" are common place in claim drafting and that these terms are to be read by the person of skill in the art. He does not explain why the person of ordinary skill in this art would have any difficulty in understanding these terms. The examples in the present application clearly set forth the purity for each starting material and that the material is not in contact with impurities or other metals. For example, Example 11 clearly states the use of copper with 99.98% purity (page 30, line 7). With respect to the measure of Gauss readings, it is not understood why the person of ordinary skill in the art would not understand the terms. Of course, any means for measuring a function cannot be absolute and standard errors are to be anticipated. The acknowledgement of this fact in the claim does not render the claim indefinite.

Applicant respectfully asserts that the present specification provides sufficient guidance and exemplification to the person skilled in the art to particularly point out and distinctly claim the subject matter, in spite of the use of relative words. In an almost identical fact pattern, the phrase "a silicon dioxide source that is essentially free of alkali metal" was held to be definite because the specification contained guidelines and examples that were considered sufficient to enable a person of ordinary skill in the art to draw a line between unavoidable impurities in starting materials and essential ingredients. *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (CCPA 1983), a copy of which is attached. Applicant respectfully requests that the rejection be withdrawn.

Rejection Under 35 U.S.C. §102(b)

The Examiner rejected claims 1-13 as being anticipated by either Svensson et al (Magnetic and electrical properties of copper-iron..), Dovgopol et al (Magnetic thermodynamic, and kinetic properties of copper containing 0.4-2.0 atom% iron impurities), or Campbell et al (A Moessbauer study of the magnetic properties of copper-iron (CuFe) alloys). Svensson discloses Cu-Fe alloys containing 0.2-1.7 atom% (2,000-17,000 ppm) Fe. Dovgopol discloses Cu-Fe alloys containing 0.4-2.0 atom% (4,000-

20,000 ppm) Fe. Campbell discloses Cu-Fe alloys containing 0.24-4.6 atom% (2,400-46,000 ppm) Fe. The amount of iron present in these metals is said to be responsible for the magnetism.

The claims require the product to be substantially free of other metals. Indeed, the starting material is 99.98% pure copper with 2-4 ppm iron. See the Declaration exhibits. No iron was added to the copper during processing. See, for example, Example 11. Following the analysis in *In re Marosi*, a person skilled in the art would conclude that such a claim would not include the amount of iron distributed through the prior art products in an amount that achieves magnetism. Unlike the situation in *Marosi*, the prior art provides no reason for removing the iron from the copper to achieve a copper that is substantially free of iron because the iron is an essential ingredient in the prior art product.

Reiterating the presently claimed invention, the manufactured copper ingot is the same starting copper material (99.98% in purity). The XRF data in the application and the GDMS, XRF, PIXE and GDOES analyses from the third parties, all detected the Fe signature of less than 472 ppm. Even if one were to assume that iron was present in this amount (as compared to the analysis detecting an emission correlated to the element), it is present in an amount insufficient to impart the described magnetic properties.

It is believed that the cited prior art does not anticipate the present claims. Applicant respectfully requests that the rejection under 35 U.S.C. §102(b) be withdrawn.

The Examiner has invited the undersigned to contact him to discuss language that would avoid the art. The undersigned would be happy to discuss the issues and will do so upon placing the evidence enclosed herewith before him.

Rejection under 35 U.S.C. §112, First Paragraph, Enablement

The Examiner rejected claims 1-13 stating that of the five examples directed to the "tailored" copper, only two exhibit any type of magnetic activity and therefore a skilled artisan would be unable to produce the claimed magnetic copper compositions without undue experimentation. The Applicant respectfully disagrees. The Applicant

asserts that four examples exhibit magnetic activity, not two. While it is true that only two examples were reported to exhibit substantial magnetic property, two had minimal or reduced activity as compared to the others (page 69, line 15 and page 72, lines 4-5). Further, the negative result of the remaining example (Example 1) does not prove the absence of magnetic property. It merely supports the fact that it was not observed at that time. Nonetheless, four out five successful attempts provides ample evidence of enablement.

In *In re Wands*, it was found by the court that the enablement was met even though not all attempts were successful. Thus, the fact that the magnetic properties were not observed each time the process was repeated does not support the conclusion that the person of ordinary skill in the art would not be enabled to make such a product given the teachings of the reference considering that four out of the five examples are successful in showing magnetic property. *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir 1988).

The Examiner attempts to distinguish over Wands by observing that, in Wands, the rejection relied upon untested/stored materials to demonstrate unpredictable/unreliable results. The argument is not understood. Perhaps the Examiner in Wands was motivated to make the rejection because of an assumption that the untested/stored materials discussed in the specification were all inactive. It is agreed that the court did not believe that such an assumption was warranted. However, the specification was found to be enabling, not by what was not tested, but by the reproducibility of what was tested. This specification, like Wands, teaches multiple successful examples. The court does not suggest that two or four successful examples are insufficient. The Examiner also attempts to distinguish over Wands by pointing to the fact that Wands presented a Declaration under 132 to show reproducibility. The court does not suggest that a patent specification which provides multiple examples cannot achieve the same result. The specification provides multiple examples, teaching reproducibility. There is no basis to conclude from this evidence that the process is not reproducible.

It is noted that reproducibility under the patent law does not require that each and every time an experiment is conducted, that a successful result is achieved. This specification teaches multiple successful examples. No more is required.

Applicant respectfully requests that the rejection be withdrawn.

Rejection under 35 U.S.C. §101

The Examiner rejected claims 14-42 stating that the disclosed invention is inoperative and therefore lacks utility. The Examiner, in essence, asserts that the claimed compositions cannot exist under conventional theories. Applicant respectfully disagrees. The claims describe the product by properties that are described and have been observed. The claims do not describe the product by a particular theory. Applicant has provided substantial data and evidence that supports the conclusion that the claimed compositions are characterized by a modification to the composition's electronic state. As established by the Declaration filed herewith, the data has been confirmed by third parties for copper, aluminum, silicon, iron, nickel and cobalt. While it is true that the specification broadly discusses his theory that explains the observed properties, the Examiner need not embrace the Applicant's theories to find the invention patentable. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §112, First Paragraph, Enablement

The Examiner rejects claims 1-9 under 35 USC 112. It is believed that Claims 14-42 were intended in view of the reference to the rejection under 101. The rejection analyzes the claims under the factors set forth in *Wands, supra*, in great detail. The rejection appears to state, simply, that because the claims are believed to be inoperative, they must also lack enablement. See page 13, generally.

The Examiner considers the 132 Declaration filed on March 23, 2006 with respect to the above two rejections. His first criticism relates to the scope of the evidence. Enclosed herewith please find an additional Declaration that establishes that these

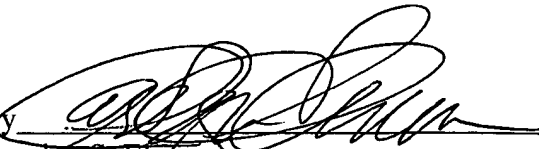
findings, as well as the findings of the independent third parties, are not unique to copper. This evidence should be sufficient to show that the results described in the specification are reliable. It is respectfully suggested that the Examiner has no basis to mandate additional, expensive third party testing to establish the veracity of the results observed and described in the specification. His second criticism asserts that the declaration fails to provide the experimental procedures of the tests. These tests are art recognized. The enclosed Declaration provides a general description. No more detail can be provided as the intent of the testing was to provide independent, third party corroboration. The third criticism is that the process for product sample 14-00-01 is not described. This number refers to the ingot produced by Example 11 of the specification. It is hoped that this clarification is sufficient.

**Conclusion**

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (978) 251-3509.

Respectfully submitted,

ELMORE PATENT LAW GROUP, P.C.

By   
Carolyn S. Elmore  
Registration No. 37,567  
Telephone: (978) 251-3509  
Facsimile: (978) 251-3973

Chelmsford, MA 01863

Dated: 